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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/664,708	09/17/2003	Michael Allen Bryner	TK3690USNA	4383

23906 7590 12/10/2008  
E I DU PONT DE NEMOURS AND COMPANY  
LEGAL PATENT RECORDS CENTER  
BARLEY MILL PLAZA 25/1122B  
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WILMINGTON, DE 19805

EXAMINER
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PIZIALI, ANDREW T

ART UNIT	PAPER NUMBER
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1794

NOTIFICATION DATE	DELIVERY MODE
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12/10/2008

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

PTO-Legal.PRC@usa.dupont.com

<b>Office Action Summary</b>	<b>Application No.</b> 10/664,708	<b>Applicant(s)</b> BRYNER, MICHAEL ALLEN	
	<b>Examiner</b> Andrew T. Piziali	<b>Art Unit</b> 1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 01 October 2008.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1 and 4-24 is/are pending in the application.
- 4a) Of the above claim(s) 15 and 17-22 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,4-14, 16, 23 and 24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 9/17/03 & 1/16/04 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Response to Amendment***

1. The amendment filed on 10/1/2008 has been entered.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 4-9, 12-14, 16, 23 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 6,723,669 to Clark in view of USPN 5,695,849 to Shawver.

Clark discloses a nonwoven fabric comprising a support web and a fibrous barrier web consisting of continuous fibers having average diameters of less than 1.0 micrometer having a hydrohead of up to and beyond 80 mbars (0-82+ cm) and a Frazier permeability of up to and beyond 100 CFM (0-30.5+ m<sup>3</sup>/m<sup>2</sup>-min) (see entire document including column 1, lines 26-51, column 2, lines 6-21, the paragraph bridging columns 3 and 4, column 11, lines 46-58, the paragraph bridging columns 12 and 13, and the Examples).

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Clark does not appear to specifically mention the use of hydrophobic fibers to increase the hydrohead, but Shawver discloses that it is known in the nanofiber nonwoven fabric art that hydrohead is influenced by the hydrophobicity of the fibers (see entire document including column 6, lines 37-53). It would have been obvious to one having ordinary skill in the art at the time the invention was made to make the nanofibers from any suitable fibrous material, such as highly hydrophobic material, motivated by a desire to form a fabric with a very high hydrohead, such as 145 to 400 cm, and because it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability and desired characteristics.

Regarding claim 4, the barrier web fibers may have an average diameter of less than 0.5 micrometer (paragraph bridging columns 3 and 4).

Regarding claims 5 and 6, the barrier layer basis weight may be between 13 and 300 g/m<sup>2</sup> (paragraph bridging columns 3 and 4).

Regarding claims 7-9, the barrier web comprises nanofibers of hydrophobic polyolefin polymer or copolymer having the claimed repeating units (column 4, line 35 through column 8, line 50).

Regarding claim 12, considering that pore size is proportional to fiber diameter (see current specification page 8, lines 10-15), and considering that Clark discloses that the barrier layer fiber diameters may be less than 10 micrometer (paragraph bridging columns 3 and 4), it appears that the fabric disclosed by Clark inherently possesses the claimed pore size.

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Regarding claim 13, Clark does not appear to mention a solids fraction value for the barrier fabric, but Clark does disclose that the fabric may be thermal point bonded (column 12, lines 12-53). Considering that calendering increases solids fraction (see page 15, lines 12-22 of the current specification), it is reasonable to presume that Clark inherently meets this limitation. In addition, Clark discloses that the cohesion between the layers can be increased (varied) as desired (column 12, lines 12-53).

Regarding claim 16, the fabric may comprise a fine fiber/SB construction (column 11, lines 46-58).

Regarding claims 23 and 24, the support web fibers may have a diameter of less than about 13 micrometers (column 2, lines 23-45).

#### ***Claim Rejections - 35 USC § 103***

4. Claims 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 6,723,669 to Clark in view of USPN 5,695,849 to Shawver as applied to claims 1, 4-9, 12-14, 16, 23 and 24 above, and further in view of USPN 6,746,517 to Benson.

Clark does not appear to teach adding a hydrophobic coating material, but Clark and Benson both relate to a nanofiber nonwoven fabrics useful in filter media. Benson teaches that adding a hydrophobic coating to the nanofibers is preferable, and such a coating is typically fluorocarbon containing (column 12, lines 47-67). It would have been obvious to a person having ordinary skill in the art at the time of the invention to add fluorocarbon coating to the material of Clark, motivated by a desire to improve filtration properties.

***Response to Arguments***

5. Applicant's arguments filed 10/1/2008 have been fully considered but they are not persuasive.

The applicant asserts that Clark fails to teach or suggest the claimed barrier web consisting of fibers having “average diameters of less than 1.0 micrometer.” The examiner respectfully disagrees. Clark clearly discloses a web wherein the fibers have a diameter less than about 10  $\mu\text{m}$  and desirably between about 0.5  $\mu\text{m}$  and about 7  $\mu\text{m}$  (paragraph bridging columns 3 and 4).

The applicant asserts that the fiber diameter disclosed by Clark cannot be produced using the processes disclosed by Clark. In support, the applicant cites the declaration filed 10/25/2006. The examiner respectfully disagrees. Said declaration only refers the ability of Anthony Fabbicante to make sub-micron fibers. Said declaration does not speak to the ability of anyone else to make sub-micron diameter fibers. In addition, the declaration admits that even Anthony Fabbicante could make the claimed sub-micron fibers (see paragraph 8 of the declaration).

The applicant asserts that the air permeability range disclosed by Clark is outside the currently claimed range. The examiner respectfully disagrees. Clark discloses that the air permeability may be in excess of 100 CFM (column 2, lines 6-21). The applicant asserts that said disclosure teaches an air permeability of 100 CFM or more, but not less than 100 CFM. The examiner respectfully disagrees. It is clear that Clark discloses that the air permeability may be up to 100 CFM, which includes air permeabilities below 100 CFM. The applicant is directed to the Examples which include an air permeability of 69 CFM (Example 1).

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The applicant asserts that the hydrohead range disclosed by Clark is outside the currently claimed range. Applicant's argument is not persuasive because one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). It is clear that the rejection relies on the combination of Clark and Shawver to teach the currently claimed hydrohead.

Even though Shawver, like Clark, discloses the use of sub-micron diameter fibers, the applicant asserts that the fiber diameter disclosed by Shawver cannot be produced using the processes disclosed by Shawver. In support, the applicant cites the declaration filed 10/25/2006. The examiner respectfully disagrees. Said declaration only refers the ability of Anthony Fabbriante to make sub-micron diameter fibers. Said declaration does not speak to the ability of anyone else to make sub-micron fibers. In addition, the declaration admits that even Anthony Fabbriante could make the claimed sub-micron fibers (see paragraph 8 of the declaration).

The applicant asserts that there is no reasonable expectation to believe that the use of hydrophobic fibers in the invention of Clark would result in the claimed hydrohead. The examiner respectfully disagrees. In terms of fiber diameter, basis weight, air permeability, and fibrous material, the nonwoven fabric disclosed by Clark is substantially identical to the claimed nonwoven. Considering that Shawver teaches the use hydrophobic fibers, it appears the nonwoven structure taught by the applied prior art is substantially identical to the structure of the claimed nonwoven.

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The Patent and Trademark Office can require applicants to prove that prior art products do not necessarily or inherently possess characteristics of claimed products where claimed and prior art products are identical or substantially identical, or are produced by identical or substantially identical processes; burden of proof is on applicants where rejection based on inherency under 35 U.S.C. § 102 or on prima facie obviousness under 35 U.S.C. § 103, jointly or alternatively, and Patent and Trademark Office's inability to manufacture products or to obtain and compare prior art products evidences fairness of this rejection, *In re Best, Bolton, and Shaw*, 195 USPQ 431 (CCPA 1977).

The applicant asserts that the results (air permeability and hydrohead) are unexpected. The examiner respectfully disagrees. Clark discloses the claimed air permeability while Shawver discloses that it is known in the nanofiber nonwoven fabric art that hydrohead is reduced by the use of hydrophobic fibers (see entire document including column 6, lines 37-53).

Regarding claim 4, the applicant asserts that Clark does not disclose fibers less than 0.5  $\mu\text{m}$  in diameter. The examiner respectfully disagrees. Clark discloses that the fiber diameter may be less than 10  $\mu\text{m}$  in diameter (paragraph bridging columns 3 and 4).

Regarding claims 10 and 11, the applicant asserts that Benson fails to teach or suggest a hydrophobic coating. The examiner respectfully disagrees. Benson discloses that the additives form a "protective coating." See the paragraph bridging columns 12 and 13.



***Conclusion***

6. Applicant's amendment necessitated any new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew T. Piziali whose telephone number is (571) 272-1541. The examiner can normally be reached on Monday-Friday (8:00-4:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena Dye can be reached on (571) 272-3186. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Andrew T Piziali/

Primary Examiner, Art Unit 1794